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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,987	07/14/2006	Jean-Jacques Sacre	PF030118	7143

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EXAMINER

CALLAWAY, JADE R

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2872

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12/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/564,987	Applicant(s) SACRE ET AL.	
	Examiner JADE R. CALLAWAY	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-13, 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments to the claims, in the submission dated 10/9/09, are acknowledged and accepted.

Response to Arguments

2. Applicant's arguments with respect to claims 10-13 and 15-17 have been considered but are moot in view of the new ground(s) of rejection.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in France on 7/23/03. It is noted, however, that applicant has not filed a certified copy of the 03/08961 application as required by 35 U.S.C. 119(b).

Claim Objections

4. Claim 10 is objected to because it recites the limitation "the liquid crystal layer" in line 21. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2872

6. Claims 10-13, 15-17, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Esaki et al. (5,716,122) in view of Lu (6,604, 828) (herein after Lu '828), Lu (2004/0160578) (herein after Lu '578) and Yajima (JP 04267203 A).

Consider claims 10 and 15, Esaki et al. disclose (e.g. figures 1-4, 6) an illuminating device comprising an optical source emitting an unpolarized light beam, a polarizing beam splitter (203a, thin film group) included between first faces (middle side length of each prism) of a first and second transparent prism (201x, 202x, rectangular prisms), which prisms each have a second exit face (shortest side of each prism) both situated within one and the same plane, said first faces (middle side length of each prism) and second faces (shortest side of each prism) of each prism being perpendicular; the unpolarised light beam (803) penetrating into the first prism (201x) through a third face of this first prism (hypotenuse of 201x) and reaching the polarizing beam splitter (203a, thin film group) that transmits the light with a first polarization direction (804) and that reflects the light with a second polarization direction (805); the light transmitted by the polarizing beam splitter being transmitted to a third face of the second prism (hypotenuse of 202x) that reflects it toward the said second exit face of the second prism (shortest side of 202x), and the light reflected by the polarizing beam splitter being transmitted to said third face of the first prism (hypotenuse of 201x) that reflects it toward said second exit face of the first prism (shortest side of 201x), wherein said illuminating device also comprises a spatial light modulator of a liquid crystal type (40, SLM can have a liquid crystal layer), and wherein the beam splitter comprises a polarizing splitting portion (203a, optical thin film group) between the first faces of the

Art Unit: 2872

first and second prisms [col. 4, lines 41-60, col. 5, lines 65-66, col. 6, lines 1-47, col. 7, lines 44-58, col. 10, lines 1-24]. However, Esaki et al. do not disclose that the light illuminating device also comprises a light integrating device, wherein the light integrating device has one entry face that is optically coupled to the second exit faces of the prisms and that, receiving the beams reflected by the third faces of the prisms, delivers a beam through one exit face whose illumination is substantially homogenous over the face such as to illuminate the liquid crystal of the spatial light modulator in a uniform manner. Esaki et al. and Lu ('828) are related as optical systems. Lu ('828) discloses (e.g. figure 3) a light integrating device that has one entry face (top portion of 351, substrate) that is optically coupled to said second exit faces of the prisms and that, receiving the beams reflected by the third faces of the prisms, delivers a beam through one exit face (entry face is the same as the exit face due to the reflective SLM) whose illumination is substantially homogeneous over this face such as to illuminate the spatial light modulator in a uniform manner [col. 3, line 17 to col. 4, line 18]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Esaki et al., as taught by Lu ('828), to include a light integrating device in order to accurately control the spatial light modulators via one integrated substrate.

However, the modified Esaki et al. reference does not disclose that the polarizing beam splitter comprises a grid polarizer between the first and second faces of the second prism on the first face of the first prism or on the first face of the second prism or that the illuminating device also comprises a polarization rotator device associated with

Art Unit: 2872

only one of the second exit faces of the prisms. Esaki et al., Lu ('828) and Lu ('578) are related as optical systems. Lu ('578) teaches (e.g. figure 2) two prisms that have a grid polarizer located between first and second faces of the second prism on the first face of the first prism [0019-0020]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the polarizing splitting portion of the modified Esaki et al. reference to include a grid polarizer as taught by Lu ('578) in order to easily select the polarization of light that is needed for a given system.

However, the modified Esaki et al. reference does not disclose that the illumination device also comprises a polarization rotator device associated with only one of the second exit faces of the prisms. Esaki et al., Lu ('828), Lu ('578) and Yajima are related as optical systems. Yajima teaches (e.g. figure 1) a polarization rotator device that is associated with only one of the second exit faces of a prism [abstract]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of the modified Esaki et al. reference to include a polarization rotator device associated with an exit face of the prisms as taught by Yajima in order to select the final polarization of a light beam that exits the prisms.

Consider claim 11, the modified Esaki et al. reference discloses (e.g. figure 1 of Esaki et al.) an illuminating device wherein non-right angles of the prisms are substantially equal to 60 degrees opposite the first faces and to 30 degrees opposite the second face, and in that the average direction of the light beam is substantially perpendicular to the third face of the first prism as it penetrates into this prism [Esaki et al., col. 4, lines 41-60].

Consider claims 12-13, the modified Esaki et al. reference does not disclose that a divergence of the light beam is greater than or equal to 5 degrees and less than or equal to 10 degrees on either side of the average direction of the light beam. Note that the Court has held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation; see **In re Aller**, 220 F.2d 454, 456, 105 USPQ 233, 235. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the divergence of the light beam to be greater than or equal to 5 degrees and less than or equal to 10 degrees on either side of the average direction of the light beam, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to select the range of divergence of the light beam in order to more accurately focus a light beam incident on the prism to avoid unwanted light reflecting within the prisms.

Consider claim 16, the modified Esaki et al. reference discloses (e.g. figure 2 of Lu '578) an illuminating device wherein an air gap is provided between, on the one hand, the grid polarizer and the first face of the first or of the second prism on which it is formed and, on the other, the first face of the second or of the first prism, respectively facing it [Lu '578; 0019-0020].

Consider claim 17, the modified Esaki et al. reference does not disclose the index of the material of the prisms is less than or equal to 1.5. Note that the Court has held that the selection of a known material based on its suitability for its intended use

Art Unit: 2872

supports a prima facie obviousness determination; See **Sinclair & Carroll Co. v.**

Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a material that has an index that is equal to or less than 1.5, since it has been held to be within the ordinary skill of a worker in the art to select a known material on the basis of its suitability for the intended use. One would have been motivated to select an index less than or equal to 1.5 in order to control reflection/refraction of the light beams within the prisms.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2872

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JADE R. CALLAWAY whose telephone number is (571)272-8199. The examiner can normally be reached on Monday to Friday 6:00 am - 3:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
/JADE R. CALLAWAY/
Examiner, Art Unit 2872

/Arnel C. Lavarias/
Primary Examiner, Art Unit 2872